



# UNITED STATES PATENT AND TRADEMARK OFFICE

A

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/055,572

10/19/2001

Tom L. Nguyen

42390P12549

6116

8791

7590

12/13/2005

BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
12400 WILSHIRE BOULEVARD  
SEVENTH FLOOR  
LOS ANGELES, CA 90025-1030

EXAMINER

BERGER, AUBREY H

ART UNIT

PAPER NUMBER

2134

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/055,572

Applicant(s)

NGUYEN ET AL.

Examiner

Aubrey H. Berger

Art Unit

2134

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 25-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2134

**DETAILED ACTION**

1. The response of 09/19/2005 was received and considered.
2. Claims 1-23 and 25-30 are pending.

***Response to Arguments***

3. Applicant's response (page 9) amends the abstract to overcome the objection.
4. Applicant's response (page 9) amends the claims to overcome the §112 ¶1 set forth in the previous Office Action and therefore those rejections are withdrawn.
5. Applicant's arguments, see pages 9-12, filed 09/19/05, with respect to the rejection(s) of claim(s) 1-30 under 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Leavitt in further view of Gunderson, Huh and Chou.
6. Applicant's arguments are persuasive because the system of Gafken does not ascertain the validity of data stored in the non-volatile storage device and if invalid to replace the data with an earlier stored valid image of the data.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2134

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5, 7-8, 10-12, 15-22 and 26-28 are rejected under 35

U.S.C. 102(b) as being anticipated by U.S. Patent Number 5,918,047 to Leavitt et al., (Leavitt).

9. Regarding claim 1, Leavitt discloses a system comprising:

a non-volatile data storage device/flash memory (fig. 1, #20), configured as one or more storage regions to store one or more bytes of data (fig. 2, #20);

a program store/shadow RAM (fig. 1, #18), communicatively coupled to the non-volatile data storage device/flash memory, the program store/shadow RAM, to store one or more processor-readable instructions to ascertain the validity of the data stored in the non-volatile storage device/flash memory, (fig. 2, #114), and if invalid to replace the data with an earlier stored valid image of the data (fig. 3, #116-118); and

a processing unit/CPU (fig. 1, #16), coupled to the non-volatile data storage device/flash memory, and program store/shadow RAM, to read and process the one or more instructions in the program store/shadow RAM, (col. 3, lines 1-5).

10. Regarding claim 2, Leavitt discloses the system of claim 1 wherein the processing unit/CPU, is configured to process the instructions in the program store/shadow RAM, as part of a start-up procedure (col. 3, lines 1-5).

11. Regarding claim 3, Leavitt discloses the system of claim 1 wherein the data stored in the non-volatile data storage device/flash memory, is a Basic Input Output System (BIOS) (col. 3, lines 40-45).

12. Regarding claim 4, Leavitt discloses the system of claim 1 wherein the processor-readable instructions in the program store/shadow RAM, ascertain the validity of the data stored in the non-volatile storage device/flash memory, on a region by region basis (col. 5, lines 2-5).

13. Regarding claim 5, Leavitt discloses the system of claim 1 wherein the earlier stored valid image of the data is stored in a location that cannot be modified without system authorization (fig. 3, #114-118).

14. Regarding claim 7, Leavitt discloses the system of claim 1 wherein ascertaining the validity of the data stored in the non-volatile storage device/flash memory, includes determining if the current data in the non-volatile storage device/flash memory, is different than the earlier stored valid image of the data (fig. 3, #114).

15. Regarding claim 8, Leavitt discloses the system of claim 1 wherein ascertaining the validity of the data stored in the non-volatile storage device/flash memory, includes determining if an integrity metric/checksum, corresponding to

Art Unit: 2134

the current data in the non-volatile storage device/flash memory, is different than the same integrity metric/checksum corresponding to the earlier stored valid image of the data (fig. 3, #114).

16. Regarding claim 10, Leavitt discloses a method comprising:

reading current content stored in a non-volatile storage device/flash memory (fig. 1, #20);

determining if the current content has been modified without authorization (fig. 3, #114); and

replacing the current content with a previously stored valid image of the content if the current content is determined to have been modified without authorization (fig. 3, #116-118).

17. Regarding claim 11, Leavitt discloses the method of claim 10 further comprising:

reading the valid image of the previously stored content (fig. 3, #112 & col. 4, lines 56-61); and

comparing the previously stored content to the current content to determine if the current content has been modified (fig. 3, #114).

18. Regarding claim 12, Leavitt discloses the method of claim 10 wherein determining if the current content has been modified without authorization includes comparing a previously stored checksum, corresponding to the valid

Art Unit: 2134

image of the previously stored content, and the checksum corresponding to the current content (fig. 3, #114 & 142).

19. Regarding claim 15, Leavitt discloses the method of claim 10 further comprising: storing a valid image of the current content for later use (fig. 3, #106).

20. Regarding claim 16, Leavitt discloses the method of claim 10 wherein the content is read from the non-volatile storage device/flash memory, as part of a start-up procedure (col. 3, lines 20-25).

21. Regarding claim 17, Leavitt discloses a method comprising:  
arranging a non-volatile storage device/flash memory (fig. 1, #20) into one or more storage regions (fig 2, #20);  
generating an integrity metric/checksum, corresponding to valid content stored in a first region of the non-volatile storage device; and  
storing the integrity metric to later determine if the content in the first region has been modified without authorization (fig. 3, #112-114).

22. Regarding claim 18, Leavitt discloses the method of claim 17 further comprising: comparing a previously stored integrity metric/checksum, corresponding to an earlier version of the content stored in the first region, to a newly calculated integrity metric/checksum, corresponding to the current content

Art Unit: 2134

stored in the first region to determine if an unauthorized modification has occurred (fig. 3, #142).

23. Regarding claim 19, Leavitt discloses the method of claim 17 further comprising: replacing the first region with an earlier version of the content therein if it is determined that there was an unauthorized modification (fig. 3, #118).

24. Regarding claim 20, Leavitt discloses a method comprising:  
arranging a non-volatile storage device/flash memory (fig. 1, #20), into one or more storage regions (fig. 2, #20);  
comparing current content in a first region to an earlier stored image of the content in the first region (fig. 3, #114); and  
replacing the current content stored in the first region with the previously stored content of the first region if it is determined that there was an unauthorized modification of the current content (fig. 3, #118).

25. Regarding claim 21, Leavitt discloses the method of claim 20 wherein the method is implemented as part of a start-up procedure (fig. 3, #100).

26. Regarding claim 22, Leavitt discloses the method of claim 20 wherein the non-volatile storage device/flash memory, is arranged into one or more logical regions, each region having one or more bytes (fig. 2, #20).



Art Unit: 2134

27. Regarding claim 26, Leavitt discloses a machine-readable medium having one or more instructions for protecting content in a non-volatile storage device/flash memory (fig. 1, #20), against unauthorized use, which when executed by a processor/CPU (fig. 1, #16), causes the processor to perform operations comprising:

- reading current content (fig. 3, #112) stored in a non-volatile storage device/flash memory;

- determining if the current content has been modified without authorization (fig. 3, #114); and

- replacing the current content with a previously stored image of the content if the current content is determined to have been modified without authorization (fig. 3, #118).

28. Regarding claim 27, Leavitt discloses the machine-readable medium of claim 26 wherein determining if the current content has been modified without authorization includes reading an image of previously stored content; and comparing the previously stored content to the current content to determine if the current content has been modified (fig. 3, #112 & 142).

29. Regarding claim 28, Leavitt discloses the machine-readable medium of claim 26 wherein determining if the current content has been modified without authorization includes comparing a previously stored checksum corresponding to a valid image of previously stored content and the checksum corresponding to

Art Unit: 2134

the current content (fig. 3, #112 &142).

***Claim Rejections - 35 USC § 103***

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

31. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leavitt as applied to claims 1 and 5 above, and further in view of U.S.

Patent No. 6,175,904 to Gunderson.

32. Regarding claim 6, Leavitt discloses the system of claim 5 but lacks or does not expressly disclose wherein system authorization includes employing a system interface to perform modifications to the data stored in the non-volatile data storage device. However, Gunderson teaches wherein system authorization includes employing a system interface to perform modifications to the data stored in the non-volatile data storage device (fig. 4, #31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Leavitt with the device of Gunderson in order to back up the data that has just been changed, as taught by Gunderson, (fig. 4, #31).

33. Regarding claim 9, Leavitt discloses the system of claim 1 but lacks or does not expressly disclose generating a copy the current data in the non-volatile storage device if an authorized application modifies the current data; and storing the copy as a valid image of the current data. However, Gunderson teaches generating a copy the current data in the non-volatile storage device if an authorized application modifies the current data; and storing the copy as a valid image of the current data (fig. 4, #31-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Leavitt with the device of Gunderson in order to in order to back up the data that has just been changed, as taught by Gunderson, (fig. 4, #31).

34. Claims 13-14 and 29-30 are is rejected under 35 U.S.C. 103(a) as being unpatentable over Leavitt as applied to claim 10 and 26 above, and further in view of U.S. Patent No. 6,584,559 to Huh et al., (Huh).

35. Regarding claim 13, Leavitt discloses the method of claim 10 but lacks or does not expressly disclose wherein determining if the current content has been modified without authorization includes comparing a previously stored cyclic redundancy check value, corresponding to the valid image of the previously stored content, and the cyclic redundancy check value corresponding to the current content. However, Huh teaches wherein determining if the current content has been modified without authorization includes comparing a previously stored cyclic redundancy check value/integrity check, corresponding to the valid

Art Unit: 2134

image of the previously stored content, and the cyclic redundancy check value/integrity check, corresponding to the current content (col. 2, lines 41-45). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Leavitt with the device of Huh in order to validate the firmware, as taught by Huh, (col. 1, lines 63-66).

36. Regarding claim 14, Leavitt discloses the method of claim 10 but lacks or does not expressly disclose wherein determining if the current content has been modified without authorization includes comparing a previously stored bit mask, corresponding to the valid image of previously stored content, and the bit mask corresponding to the current content. However, Huh teaches wherein determining if the current content has been modified without authorization includes comparing a previously stored bit mask/validation technique, corresponding to the valid image of previously stored content, and the bit mask/validation technique, corresponding to the current content (col. 4, lines 11-13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Leavitt with the device of Huh in order to validate the firmware as taught by Huh, (col. 1, lines 63-66).

37. As per claims 29-30, this is a machine-readable medium version of the claimed method discussed above in claims 13-14 wherein all claimed limitations have also been addressed and/or cited as set forth above.

Art Unit: 2134

38. Claims 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leavitt and further in view of U.S. Patent No. 5,892,906 to Chou et al., (Chou).

39. Regarding claim 23, Leavitt discloses a method comprising:

arranging a non-volatile storage device/flash memory (fig. 1, #20) into one or more storage regions (fig. 2, #20);

verifying that the content in the non-volatile storage device is valid (fig. 3, #114).

Leavitt lacks or does not expressly disclose encrypting the content in a first region by use of a first encryption key to protect it from unauthorized access. However, Chou teaches encrypting the content in a first region by use of a first encryption key to protect it from unauthorized access (fig. 3, #15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Leavitt with the device of Chou in order to secure the BIOS, as taught by Chou, (col. 3, lines 51-62).

40. Regarding claim 25, Leavitt as modified by Chou above discloses the method of claim 23 further comprising: protecting the content of a second region with a second encryption key (Chou, col. 4, lines 20- 28).

Art Unit: 2134

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aubrey H. Berger whose telephone number is (571)272-8155. The examiner can normally be reached on Monday - Thursday, 7:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Morse can be reached on (571)272-3838. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AHB

AHB



GREGORY MORSE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2134